ABSTRACT OF THE DISCLOSURE

A method for manufacturing a low voltage semiconductor device by forming a floating gate of a nonvolatile memory device as a particulate layer and determining a memory state by control of three to four electrons per particle, and which can improve the reliability of the device with a reduction of the influence on the device by restricting the leakage caused by a local defective portion of a tunnel oxide film to only the particles on that portion. The disclosed method includes: forming a tunnel oxide film on a silicon substrate where a predetermined substructure is formed; forming a particulate layer on the tunnel oxide film layer; sequentially forming a control oxide film layer and a control gate layer on the dot layer; and forming a dual gate by patterning the control gate layer, the control oxide film layer, the particulate layer and the tunnel oxide film layer into a predetermined shape.